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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,809	11/21/2003	David Earl Schafer	30521/3055	3297

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EXAMINER

ENSEY, BRIAN

ART UNIT PAPER NUMBER

2615

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/719,809	Applicant(s) SCHAFER ET AL.	
	Examiner Brian Ensey	Art Unit 2646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-14 and 21-32 is/are allowed.
- 6) ☒ Claim(s) 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besson GB Patent Publication 1,057,853 in view of Broersma U.S. Patent No. 4,126,769.

Regarding claim 15, Besson discloses a diaphragm (22) for a receiver, the receiver having a linkage assembly (21) and an armature (8) coupled thereto, the armature having a first inertial mass, the diaphragm comprising: an attachment point for connectively coupling to the linkage assembly; and a paddle (25), responsive to a movement of the linkage assembly, the paddle generally flat, having an upper surface and a lower surface, the paddle defining a plane, the paddle for creating sound pressure according to the movement of the linkage assembly (See Fig. 2 and page 1 lines 9-62). Besson does not expressly disclose the paddle has a lowest frequency resonance greater than 7.5 KHz. However, Broersma teaches a resonant frequency range of 7 kHz to 10 kHz (See col. 1, lines 32-37). The resonant frequency is directly related to the stiffness and composition of the diaphragm, therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the diaphragm of Besson as taught by Broesma to provide improvement with regard to the higher part of the frequency range (See col. 1, lines 19-31).

Regarding claim 16, the combination of Besson in view of Broersma further discloses a first layer having a first upper surface and a first lower surface; and a second layer having a

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second upper surface and a second lower surface, the second upper surface in contact with the first lower surface, wherein at least one of the layers is one of a metal and a composite (See page 1, lines 57-62).

Regarding claims 17 and 23, the combination of Besson in view of Broersma further discloses the metal is one of aluminum, titanium, tungsten, stainless steel, copper, brass, beryllium copper and platinum composite (See page Besson, lines 57-62).

Regarding claim 18, the combination of Besson in view of Broersma discloses a first layer having a first upper surface and a first lower surface; a second layer having a second upper surface and a second lower surface, and a third layer having a third upper surface and a third lower surface, wherein the second upper surface in contact with the first lower surface, the second lower surface in contact with the third upper surface, wherein the second layer is one of a cement for securing the thin film layer to the aluminum stiffening plate (See Besson lines 57-62). Broersma further teaches a second layer of a suitable adhesive for securing an upper and lower layer together (See Broersma col. 2, lines 60-65). Adhesives comprised of thermoplastic, thermo set, polyimide and epoxy are well known in the art and it would have been obvious to one of ordinary skill in the art at the time of the invention to use any of these well known adhesives to secure the upper and lower layers of the vibrating paddle of the combination of Besson in view of Broersma.

Regarding claims 19 and 20, the combination of Besson in view of Broersma teaches a second layer (cement) provides spacing between the first and third layer (See Besson lines 57-62). Besson further teaches the second layer is cement while the third layer is aluminum and the first layer is 0.00025 inch thick Mylar (See page 3, lines 9-15). Besson does not expressly

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disclose the second layer is of a lower density than at least one of the other layers and a thickness of the first layer is between 10% and 200% of the thickness of the second layer. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the diaphragm to provide improvement with regard to the higher part of the frequency range (See col. 1, lines 19-31).

Allowable Subject Matter

Claims 1-14 and 21-32 are allowed.

The following is an examiner's statement of reasons for allowance: The present invention is directed to a receiver diaphragm. Independent claims 1 and 21 identify the uniquely distinct feature of an armature having a first inertial mass and a paddle for creating sound pressure having a second inertial mass such that the momentum created by a movement of the diaphragm armature is approximately equal to a momentum created by movement of the diaphragm. The closest prior art, Besson (GB Patent Publication 1,057,853) teaches an improvement to a miniature receiver utilizing a multilayered diaphragm and adjustable drive pin to vary the frequency response of the receiver; and Broersma (U.S. Patent No. 4,126,769) teaches an improvement to a miniature receiver utilizing a multilayered diaphragm to improve the characteristics of the higher part of the frequency range up to approximately 7 – 10 kHz. The prior art fails to anticipate or render obvious the above independent claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Applicant's arguments, see pages 8 and 9, 102(b) Rejections and page 10, lines 21-29 and page 11, lines 1-4, filed 12/19/05, with respect to claims 1-14 and 21-32 have been fully considered and are persuasive. The rejection of claims 15-20 has been withdrawn.

Applicant's arguments filed 12/19/05 regarding claims 15-20 have been fully considered but they are not persuasive.

With respect to the applicant's argument pertaining to **claims 15-20** on page 10, lines 8-20 of the applicant's AMENDMENT IN RESPONSE TO NON-FINAL OFFICE ACTION filed on 12/14/2005 and received on 12/19/2005 that *Neither Besson nor Broersma, separately or in combination teach anything about the frequency resonance of the paddle, especially that it be greater than 7.5 kHz*, the Examiner disagrees.

Both Besson and Broersma teach a receiver with a multilayer diaphragm with adjustable parameters to improve the frequency response of the receiver. Broersma specifically teaches that frequency efficiency depends of parametes such as "the dimensions and the pivot construction of the stiffened portion, the size of the diaphragm, and the selection of the place where the coupling member is connected to the diaphragm" (See col 4, lines 6-9). All of theses adjustments or modifications are directly related to the diaphragm (paddle) of the receiver device in order to "having improved characteristics with regard to the higher part of the frequency range, that is to say, up to approximately 7000 to 10,000 cycles, without thereby impairing the lower part of the

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frequency band” (See col. 1, lines 32-37). It would have been obvious to one of ordinary skill in the art at the time of the invention that such modifications to the diaphragm (paddle) clearly teaches the paddle has a lowest frequency resonance greater than 7.5 kHz (since the disclosed band is up to 10 kHz). It is the opinion of the examiner that the rejection of claims 15-20 as taught by the combination of Besson in view of Broersma meet the limitation as calimed by the applicant.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Ensey whose telephone number is 571-272-7496. The examiner can normally be reached on Monday - Friday 6:30 AM - 3:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
P.O. Box 1450
Alexandria, Va. 22313-1450

Or faxed to:

(571) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "PROPOSED" or "DRAFT".
Hand-delivered responses should be brought to:

Customer Service Window
Randolph Building
401 Dulany Street
Arlington, VA 22314

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BKE
March 16, 2006


SINH TRAN
SUPERVISORY PATENT EXAMINER